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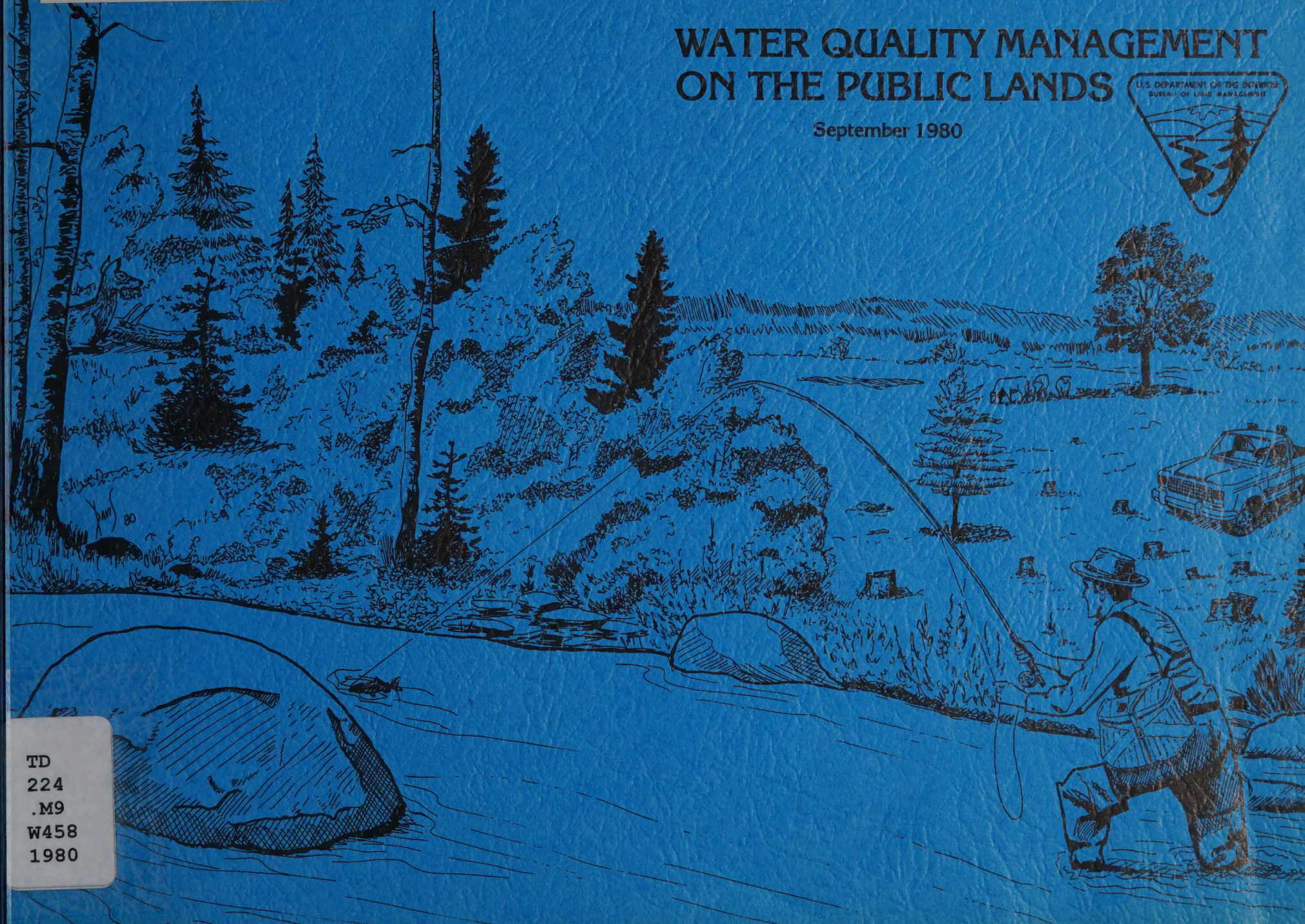
WATER QUALITY MANAGEMENT ON THE PUBLIC LANDS

September 1980



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WATER QUALITY MANAGEMENT ON THE PUBLIC LANDS

A Guide to Resource Managers and Specialists In Montana, North Dakota, and South Dakota

September 1980

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Prepared by
Mike Whittington, MSO Staff Hydrologist
Eric Stone, MSO Regional Planner

To: State Office and District Office Staff

From: State Director

Subject: Water Quality Management on the Public Lands

For the past several years, you have received information, directives and assistance requests related to the '208' Program. As a State-managed water quality planning effort, '208' is resulting in State and EPA approved water quality management programs.

The planning phase incorporated input from the Bureau and many other agencies, contractors and the public. Numerous interim reports and information releases have resulted.

We officially accepted responsibilities for implementation of the Montana Program with my approval of the Memorandum of Understanding on March 31 of this year.

This brochure presents a capsule summary of the '208' program for our three state area and my guidance for fulfilling BLM's responsibilities under the program.

I would like to emphasize that our role on this program boils down to a professional, consistent and documented approach to good stewardship of the Public Land.

Michael J. Penfold

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The Challenge of 208 Water Quality Management in Montana, North Dakota, and South Dakota

Water—clear, clean, pure, and useable. All residents of the three state area would like to see their state's water resources in such a condition, but often there are factors in our environment which hinder reaching this goal. As our population increases and agricultural and industrial practices become more sophisticated and extensive, our streams and lakes receive many of the pollutant discharges which result from our progressive way of life.

Water is one substance essential to all living things and clean water is one of our most important resources. What happens to our rivers, lakes and streams will eventually affect the quality of our lives.

Our challenge now as federal land managers is to establish better management of this resource so we can attain and maintain the quality of our waters at an acceptable level to meet various consumptive and nonconsumptive uses. A start toward this goal has been made through 208 Planning and program implementation. BLM participation in the planning phase and active compliance in the implementation phase is essential to the success of the program as well as required by federal law.

The goal of 208 is to protect the quality of the nation's water for present and future municipal, agricultural, industrial, and recreational uses and for support of fish, wildlife, and other aquatic life. It seeks effective solutions to water quality problems caused by waste discharges and land use practices.

A Synopsis of 208

The 1972 Federal Water Pollution Control Act Amendments (Public Law 92-500) and the more recent Clean Water Act (PL 95-217) established a national goal: to have by 1983, wherever possible, a national water quality suitable for recreation, fish and wildlife; and to eliminate by 1985 pollutant discharges into the nation's waters.

Section 208 of Public Law 92-500 provides that the planning to achieve this goal be done by state or local planning agencies. Local governments are thus given the funds and the opportunity to solve regional and statewide water quality problems.

Section 208 Planning was designed to determine what steps must be taken to attain and maintain high water quality in the nation's rivers, streams, and lakes. Studies project how future activities and development could affect water quality and how to avoid future problems. Public participation was important to the process to ensure that local problems and needs were reflected in the final 208 Plans.

Section 208 Plans for water quality management are not land-use projects but are closely related to land management because land use affects water quality. The 208 process must consider land management and work closely with those individuals and agencies who can affect changes for pollution abatement.

In Montana, plans for water quality control programs were developed in four areas by local areawide planning organizations and for the remainder of the state by the Department of Health and Environmental Sciences, Water Quality Bureau. Local planning areas were designated by the Governor because of substantial existing or anticipated water quality control problems requiring intensive management planning (see map illustration).

When combined, the final plans recommended to various local, state and federal agencies complementary water quality control measures to upgrade polluted waters and to protect existing high quality water in Montana.

The developed plans provide the framework for an ongoing process of attaining established water quality goals, incorporating more effective management and regulatory programs, and evluating the economic, social and environmental effectiveness of management programs prior to implementation.

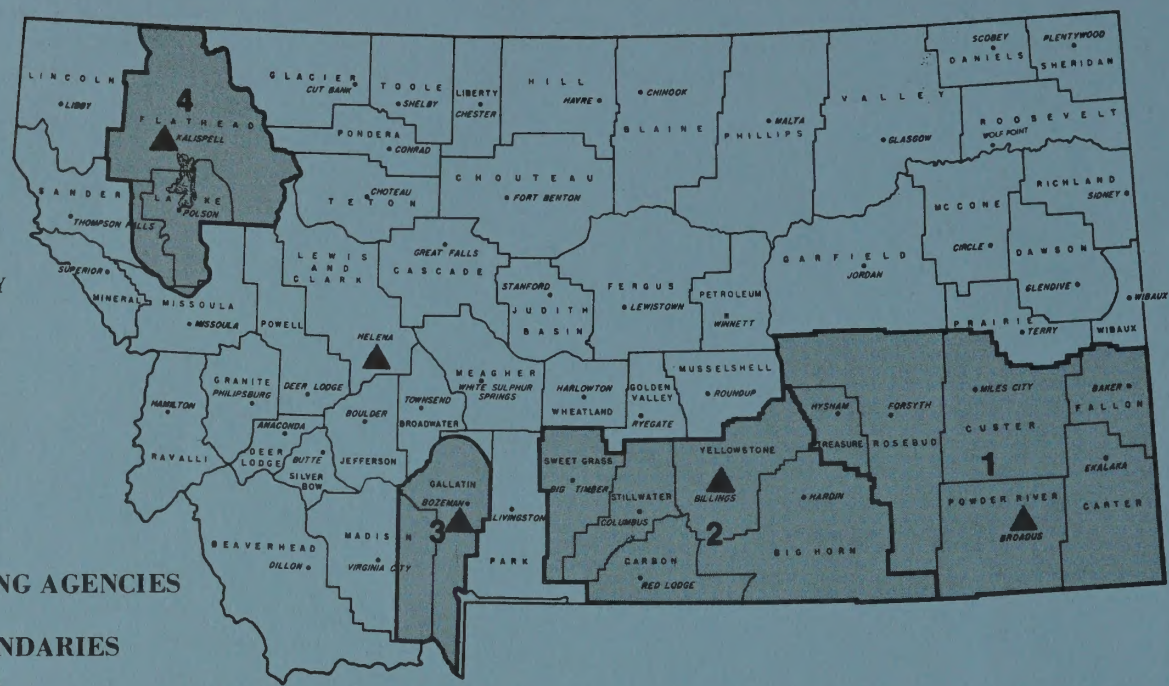
In North Dakota, 208 planning was done by the State Health Department and by the Lewis and Clark Regional Council for Development (RCD). The Lewis and Clark RCD area is comprised of Burleigh, Emmons, Grant, Kidder, Sioux, McLean, Mercer, Morton, Oliver and Sheridan Counties. This area was designated by the Governor as a high impact area where the growth of energy-related industries will seriously affect water quality and create critical pollution problems. The Health Department was designated as the lead agency for the remainder of the state. The statewide Plan has been certified by the Governor and was conditionally approved by the Environmental Protection Agency in January, 1980.

AREAWIDE PLANNING ORGANIZATIONS

1. Yellowstone - Tongue APO
2. Mid-Yellowstone APO
3. Blue Ribbons APO
4. Flathead APO

STATEWIDE PLANNING AGENCY
Department of Health and Environmental Sciences
Water Quality Bureau
Helena

Indicates planning agency locations



RESPONSIBLE PLANNING AGENCIES AND STUDY AREA BOUNDARIES MONTANA

In South Dakota, 208 planning was done by the State Department of Environmental Protection, the Sixth District Council of Local Governments and an areawide planning organization in the Sioux Falls area. The Sixth (Congressional) District is comprised of Harding, Butte, Meade, Lawrence, Pennington, Fall River, and Custer Counties. This area was designated by the Governor at the request of the Council because of existing or potential water quality problem areas. Coincidentally, the Sixth District contains most of the BLM managed surface and subsurface resources. The State Department of Environmental Protection was designated as the lead agency for those portions of the State not covered by the two areawide organizations. The Sixth District Council "Water Quality Management Plan—Final Report" was issued in March 1978. The statewide plan has been certified by the Governor and conditionally approved by the Environmental Protection Agency.

The Need for 208 Water Quality Management Planning in Montana

Though Montana has some of the best quality waters in the nation, many of our lakes and streams suffer some effects of water pollution.

Water pollution problems resulting from inadequate municipal waste treatment systems, acid mine seepages, and industrial wastes are widely recognized. Other causes of water pollution such as salts from irrigation and dryland farming, sediment from various land disturbances, seepage of sewage from septic tanks, and excessive water withdrawals are less obvious, but may have more significant effects on the quality of our waters. Combined, all are part of the water quality problems of Montana. More miles of streams in Montana are degraded by pollutants resulting from our land uses than are degraded by municipal and industrial waste discharges. Yet, the emphasis of water pollution control programs has been aimed at municipal and industrial waste discharges (point source discharges). To really protect and maintain our water resources, we need to formulate water quality management programs which will reduce pollutants originating from developed lands and land use practices (nonpoint source discharges).

Point and Nonpoint Pollution

Pollution from point sources results when sewage or wastewater is collected and discharges—with or without treatment—through a pipe or ditch directly into a stream or lake. Examples of point sources would be sewage from a municipal wastewater treatment system or industrial wastewater that is discharged through a pipe.

Pollution from point sources is usually treated by waste treatment facilities such as waste stabilization ponds (lagoons). Point sources of pollution must have a Pollutant Discharge Permit and permission must be received from the State Department of Health before treated wastes can be discharged. Permission to discharge is granted only after the wastewater is analyzed to determine whether it meets the necessary treatment requirements.

Pollution from nonpoint sources is an accumulation of pollutants from a disturbed area with no defined origin and is the result of naturally occurring events such as precipitation, seepage, and runoff. Nonpoint pollution is normally not controlled by the installation of a treatment system but must be controlled through land management. Nonpoint sources include recreation, mining, agriculture, construction, and urban runoff. These activities and sources include something every person in the state does or supports.

Here are a few of the water pollution problems these activities are causing:

—EROSION carries precious soil from the land and although not all eroded soil gets into a stream or lake, sediments can cause problems wherever they are deposited, such as filling in road ditches.

—SEDIMENTS destroy fish habitats and recreational areas when they are deposited in streams, river, lakes, and man-made reservoirs. Flood control capacity of reservoirs and impoundments are slowly lost through the build-up of sediments.

—DISEASE may occur when untreated wastes, litter, and dead animals enter our waters.

—PESTICIDE missuse can endanger humans, fish, and wildlife.

—SALT AND MINERALS are associated with sediment and saline seeps, making the water less suitable for downstsream uses.

—NUTRIENTS such as nitrogen and phosphorous compounds cause excessive plant and algae growth in streams and lakes which leads to eutrophication.

Because of the diverse nature of nonpoint source pollution, it is very difficult to control through regulations. For this reason, more attention is now being directed to developing methods of farming, grazing, timber harvest, road and other construction, oil and gas development, and mining which cause less runoff and consequently less pollution.

Problems Considered

Section 208 water quality management planning identified and evaluated the nature and extent of the following water quality problems:

—AGRICULTURE—Water quality degradation caused by sediment, salts, dewatering, and animal wastes resulting from poor land use practices on crop and range lands.

—FORESTRY—Water quality degradation caused by sediment, nutrients, and logging debris originating from logging practices on private, state, and federal lands.

—MINING—Surface and groundwater degradation caused by sediment, salts, metals, and acid seepages originating from mining practices and activities.

—CONSTRUCTION—Water quality degradation caused by sediment and other pollutants originating from construction of roads, subdivisions, and other land developments.

—RESIDUAL WASTE CONTROL—Impairment of surface and groundwater quality caused by seepage from septic tanks, and land disposal of sewage sludges and solid wastes.

—MUNICIPAL AND INDUSTRIAL WASTE TREATMENT SYSTEM—Impairment of water quality of existing and future waste discharges.

—URBAN AND INDUSTRIAL STORMWATER SYSTEMS—Water quality degradation caused by sediment, heavy metals, and other pollutants from stormwater systems returning to streams and lakes.

Problem Solving Considerations

In developing solutions to our water quality problems, 208 planning results in recommendations based upon the following:

1. The identification of best soil, water and land conservation practices necessary to reduce water quality degradation caused by agriculture, forestry, construction, mining, and other land use activities.

2. An identification and assessment of municipal and industsrial waste treatment needs and waste load reductions and allocations to meet state water quality standards.

3. A review of state water quality standards including the identification and assessment of water quality problems violating water quality standards.

4. An identification and evaluation of local, state, and federal government authorities and their capabilities to assume specific water quality management and control responsibilities, including financial and manpower needs.

5. The evaluation of alternative regulatory and non-regulatory programs and revision of existing programs to protect and maintain the quality of our waters.

How the Montana Statewide Water Quality Management Plan Was Developed

An Advisory System, consisting of the Water Quality Bureau, a Statewide Advisory Council, a Technical Information Group, and a Citizen Information Group, was organized to develop the statewide water quality management plan.

ADVISORY SYSTEM FOR
STATEWIDE 208 WATER QUALITY MANAGEMENT PLANNING

Department of Health and Environmental Sciences
Water Quality Bureau

Statewide 208 Advisory Council

Citizen Information Group *Technical Information Group*

The Water Quality Bureau was responsible for preparing the statewide water quality management plan. The Advisory Council was responsible for review and recommendations on water quality management policies as they relate to the statewide plan. The Citizen Information and Technical Information Groups provided advice to the Advisory Council on area attitudes and technical management decisions to facilitate plan development.

After plan review by the Advisory System, local government officials, and interested citizens, the Water Quality Bureau submitted the final plan and its recommendations to the Governor for his certification. The Governor had the option to reject any part of the plan. After the Governor's certification, the U.S. Environmental Protection Agency's approval of the plan was required before it could be put into effect. Appendix B contains a recent letter from the Environmental Protection Agency encouraging federal agencies to actively support the water quality programs.

The October 1979 Montana Statewide Water Quality Management Plan describes the existing program, nature, and extent of water quality problems and then prescribes management for both nonpoint and point sources of pollution. It is important to note that the Montana water quality management plan is essentially a non-regulatory program—it does not have the force of law in and of itself. Local governments can enact the plan control elements through ordinances, but this is somewhat unlikely. The plan is binding on state and federal agencies, although our efforts may be limited by funding, manpower, and other constraints.

Numerous supporting studies were used to document problem areas. Appendix D is a bibliography of the most significant publications and studies. Appendix C (Part I) contains a listing of Agricultural Best Management Practices which have been adopted from the Soil Conservation Service Engineering Standards and Specifications. The full text of these practices is on file in BLM District Office libraries. Appendix C (Part II) contains the Montana Recommended Forest Best Management Practice Guidelines.

Role of the Public in 208 Planning

Section 208 Water Quality Management Planing seeks to develop and implement solutions to water quality problems which are technically feasible, acceptable to the public, and workable at local and state levels of government.

Public acceptance of the planning goals and final recommendations are essential to plan success. Plan success is also dependent upon public interest and input throughout the planning and implementation period.

The BLM Role in 208

The Montana State Office—Montana Water Quality Bureau Memorandum of Understanding dated April 22, 1980 (see appendix A) forms the basis for BLM water quality management efforts in Montana. Similar (pending) agreements for North and South Dakota establish guidance for BLM surface and subsurface resource management in those states. The other primary basis for implementation is the 43 CFR 1601 planning regulations, MSO 7200 Water Management manual supplement (Section 7200.22, "Water Quality Coordination and Management"), and MSO Divison of Resources scheduled manual supplement on "rangeland monitoring and evaluation" (for water quality). The most important portion of the Montana MOU is Section III "Agency Roles, Program Implementation Coordination and Implementing Agency Designation." This forms the basis for the following joint implementation guidance.

The following discussion of BLM's role and responsibility is based on the completed agreement with the Montana Water Quality Bureau. Since the Montana agreement was also reviewed and approved by the Environmental Protection Agency, Region VIII field office (Helena) it is expected that the North and South Dakota agreements will require very similar BLM roles.

Agency Roles — General

BLM is committed to prevent degradation of water quality and implement Best Management Practices (BMPs) to the extent practical. BLM will accomplish these objectives primarily through the land use planning and the multiple-use decision process. Montana Water Quality Bureau participation in the process (primarily through review and comment opportunities), is mandated by the agreement, by federal laws and the 1601 planning regulations. The planning regulation section on interagency coordination will be the basis for both State Director coordination (1601.4-1), District Manager coordination (1601.4-2), and general guidance and plan consistency (1601.4-3).

Implementation Program

1. **Problem Assessment.** Existing state, areawide and (SCS) Soil Conservation District plans will be the primary basis for **outside** input to problem assessment. This will be combined with internal BLM problem assessments and be the basis for the **draft planning criteria**. They are essentially public **issues** (1601.5-1) and management **concerns** which lead to draft criteria (1601.5-2). WQB, the SCDs and general public will review and comment on the published draft planning criteria (1601.3(e)(1 & 2) prior to the District Manager's selection of "final" planning criteria. This all occurs **prior** to inventories for RMPs (and MFPs) (1601.5-3) and thus precedes the decision by about four years. The planning criteria guide the inventory design so that both **problem prevention** and **problem correction** can be addressed in the land use plan.

2. **Best Management Practices (BMPs).** BMPs will often be prescribed by State or SCD water quality management plans. The BMPs may be modified or expanded to meet local BLM water quality problems. In some cases, BMPs may provide a variety of methods to solving or avoiding water quality problems. These alternative solutions should be carried forward out of the analysis of the management situation (1601.5-4) and be utilized in the formulation of alternatives (1601.5-5). The expected results in reducing or avoiding water quality problems will be explicitly stated in the section on "estimation of effects of alternatives" (1601.5-6). When the District Manager selects the prefered alternative (1601.5-7) he **must meet** the minimum state and SCD standards but he need not select the most environmentally preferred alternative (in terms of water quality). For example, total removal of livestock, together with range rehabilitation, could provide the **best** water quality attainable, but the District Manager might choose a more commodity productive (livestock forage) alternative which meets other multiple-use objectives while still providing an **acceptable level** of water quality protection.

3. **Public Involvement.** Public involvement includes a variety of techniques to insure that the Water Quality Bureau, Helena Office of EPA, Soil Conservation District, resource users and general public are given adequate opportunity to participate in the development and implementation of the water quality program standards, plans, and programs.

The planning regulation public participation (1601.3) and interagency coordination (1601.4) sections describe specific times and methods for insuring public involvement. There are several specified times for

Erosion and sedimentation are the most prevalent water quality concerns on the public lands.

public meetings or notices and specific requirements for insuring consistency with the state, local and tribal natural resource plans, programs and policies. It should also be noted that 1601.0-8(j) & (k) "Principles" requires "Compliance with applicable pollution control laws, including State and Federal air, water, noise, or other pollution standards or implementation plans . . . [and that] . . . the resource inventory, planning and management activities of . . . [BLM lands] . . . shall be coordinated with the resource planning and management programs of other Federal departments and agencies, states and local governments and Indian tribes . . ." Since Soil Conservation Districts have been recognized (and often partially funded) by the Federal government, their "standards, plans and programs" should be given equal consideration with other "local resource plans, policies and programs."

4. **Implementation Mechanisms.** BMPs, including on-the-ground actions such as contour plowing, reseeding, modified fire control, spring and well development, etc., and administration actions such as denial or modification of proposed actions are part of "implementation mechanisms." It is important to note that **all immediately implementable** BMPs should be utilized and **required** as soon as the resource manager has the option to act. Thus, ongoing oil and gas leases, timber sales, road construction or other projects can be modified to protect water quality without waiting for land use planning, activity planning, new funding or additional instructions.

5. **Monitoring.** Land use plans and activity plans which prescribe or otherwise include BMPs should include provisions to monitor the effectiveness of water quality enhancement measures (1601.5-9). The monitoring results will be collected by the State Office every March and reported to the WQB and EPA for the "305(b)" report (required under PL-95-217). The BLM report will effectively document the level of our compliance with the program (as a whole) and help to establish the effectiveness of individual BMPs on a case-by-case basis for specific (often unique) field situations.

A formal monitoring program is necessary to document the effectiveness of BMPs over the long term; however, "informal" but documented observations (i.,e., "grab-samples") by BLM Surface Protection Specialists, hydrologists, engineers, foresters, range conservationists, etc., will be needed as suspected problems arise. In addition, some operator, lessee, permittee or purchaser reports may be (required or otherwise) available to document the success of BLM implemented BMPs.

6. **Program Review, Evaluation and Updating.** The annual March "305(b)" reports, together with other pertinent documentation will form the basis for BLM-WQB-EPA reviews and evaluations. As the program progresses, the annual meetings will provide more feedback to the field on successful, efficient, and effective BMPs. Problems with the program and BMPs will also be reflected by updating or amending the State Water Quality plans and BLM procedures.

APPENDICES

APPENDIX A

MEMORANDUM OF UNDERSTANDING
Between
Montana State Office, Bureau of Land Management
and
State of Montana, Department of Health and Environmental Sciences
Water Quality Bureau

SECTION I. PURPOSE

The purpose of this agreement supplement is to provide for effective implementation of approved State of Montana Water Quality Management plans on public lands administered by the Bureau of Land Management within Montana. This memorandum expands the responsibilities of both agencies to include the goals of meeting established federal and state water quality standards and BLM implementation of Best Management Practices, wherever feasible. This agreement supersedes and replaces the original Memorandum of Understanding which became effective May 12, 1977. The original agreement will be null and void when this agreement is signed by both parties.

SECTION II. BACKGROUND AND AUTHORITIES

A. Bureau of Land Management

The Federal Land Policy and Management Act of 1976 (PL 94-579) provides BLM authority for inventory and comprehensive planning for all public lands and resources under its jurisdiction. An integral part of this process is water quality consideration, with the mandate that BLM will provide compliance with applicable pollution control laws, including state and federal plans. This is consistent with federal responsibilities incorporated in Executive Order 12088 of 10/13/78 relative to water quality standards and effluent limitations from the discharge or runoff of pollutants described in the Clean Water Act of 1977 (PL 95-217).

PL 94-579 prescribes close coordination between BLM and state and local resource planning and implementation agencies. BLM policy relative to coordination of BLM planning with statewide planning conducted under Section 208 of the Clean Water Act of 1977 is outlined in the National EPA/BLM agreement of 1/5/76.

B. Water Quality Bureau

The Montana Water Quality Act, Montana Code Annotated, Sections 75-5-101 through 75-5-636 and the Water Quality Standards, Rule ARM-16-2.14 (10)-S14480 (6)(0) provide the legal authority to the State of Montana for control of point and nonpoint sources of pollution.

Section 75-5-101 of the Water Quality Act establishes a declared policy of the State to provide a comprehensive program for the prevention, abatement and control of water pollution. Under Section 75-5-605 of the Act, it is unlawful to cause pollution of any state waters. Section 6(0) of the Water Quality Standards rule provides the Department of Health and Environmental Sciences with the authority to order elimination or minimization of pollution resulting from storm drainage, storm sewer discharges, and nonpoint sources, including irrigation practices, road building, construction, logging practices, overgrazing and other practices.

Protection of existing high quality waters is provided for by the nondegradation policy, Section 75-5-303 of the Water Quality Act. This policy instructs that the Board of Health and Environmental Sciences shall require "that any state waters whose existing quality is higher than the established water quality standards be maintained at that high quality unless it has been affirmatively demonstrated to the board that a change is justifiable as a result of necessary economic and social development and will not preclude present and anticipated use of these waters."

Degradation of water quality as a result of stream dewatering apparently cannot be controlled by DHES under the existing legal and administrative framework of the water pollution control program. The DHES, however, can reserve instream flows for the maintenance of water quality through the reservation provisions of the Water Use Act administered by the Department of Natural Resources. The DHES cooperates with the Department of Fish, Wildlife and Parks and other agencies with instream flow projects. Instream flow reservations are recognized by the DHES as a significant mechanism to the maintenance of state water quality standards.

Montana's Section 208 Water Quality Management Plans recommend Best Management Practices to protect instream water quality and solve existing nonpoint source pollution problems. Montana's Water Quality Standards and water quality criteria for nonpoint source pollutants are based, for the most part, on naturally occuring conditions resulting from runoff from developed lands over which all reason able land, soil and water conservation practices have been applied. The State's approved Water Quality Management Plans recognize these reasonable practices to mean Best Management Practices.

SECTION III. AGENCY ROLES, PROGRAM IMPLEMENTATION, COORDINATION AND IMPLEMENTING AGENCY DESIGNATION

The Bureau of Land Management and Water Quality Bureau (WQB) mutually agree to the following provisions so as to prevent duplication of effort and to provide the necessary coordination to meet the implementation requirements of PL 95-217.

A. Agency Roles

BLM will exercise its statutory authority and responsibility as the lead management agency for planning and implementing natural resource management programs for the protection of water quality on federal lands under its jurisdiction. BLM district offices will incorporate water quality goals and objectives in their land use plans. BLM on-the-ground actions will be designed to:

1. prevent degradation of water quality from nonpoint source pollution.
2. to the extent practical implement Best Management Practices for water quality protection.

The BLM will coordinate its land use planning activities with the Water Quality Bureau in such a manner as to allow the Bureau effective and timely input into the process. The BLM, where appropriate, will coordinate its water quality monitoring and water reservation activities with the Water Quality Bureau. The BLM will continue to use the BLM/DSL cooperative agreement to insure that land use decisions and mine plan approvals comply with both state and federal water quality laws and will confer with the Water Quality Bureau on matters pertaining to the state's nondegradation policy and water quality standards in its approval actions.

The Water Quality Bureau will provide, to the extent practical, water quality information and technical assistance to BLM relative to water quality management considerations in BLM's land use planning processes. WQB assistance would include, but would not be limited to, joint field investigations of BLM determined problem areas.

B. Implementation Program

The implementation program has six major components, including (1) nonpoint source problem assessment; (2) identification and development of Best Management Practices; (3) a public involvement program; (4) implementation mechanisms; (5) a monitoring program; and (6) a program review, evaluation and updating process.

1. Problem Assessment

The problem assessment is divided into two discrete categories which correspond to the implementation concepts of **prevention** and **correction** or restoration.

a. Problem Prevention

The sensitive geographic areas that are potential water quality hazards are identified at various BLM planning levels.

For these areas, recommended management is designed to protect water quality and minimize the potential adverse water quality impacts from resource management actions. BLM will identify such sensitive areas on maps of appropriate scale and report to WQB along with existing **and** recommended management on each area.

b. Problem Correction

The BLM, with assistance from the Water Quality Bureau, will implement the following problem/solution process as a strategy for the management of nonpoint sources of pollution:

1. Annually identify and update existing and potential nonpoint source problems;
2. develop a priority list based on problem severity;
3. select and adopt Best Management Practices which can be applied to correct identified problems;
4. establish realistic abatement schedules for the identified problems; and
5. report annually accomplishments to the WQB and EPA.

The BLM and WQB mutually agree to the following timetable of activities:

March 31	April 1—May 30	June 1—July 31	August 1	October 15
Individual Agency reports due to WQB including:	WQB Analysis of multi-agency reports	Joint Agency meeting, objectives including:	WQB updates statewide 208 report	WQB completes 208 report update & feedback to agencies
1. Problem identification and causes		1. Discussions of Agency priorities and solutions		
2. Problem prioritization		2. Review of reports		
3. Selected BMPs		3. Other (followed by joint field investigations of top priority problems)		
4. Abatement schedule				
5. Report of accomplishments				

*Agency report and meetings would include BLM and other 208 cooperation agencies.

2. Best Management Practices

Nonpoint source water quality problems are best contolled through the implementation of sound resource management practices, commonly referred to as "Best Management Practices" (BMPs). The BLM will attempt to meet or exceed the prescribed state practice criteria and standards as incorporated in the Statewide Water Quality Management Plan.

3. Public Involvement

The Clean Water Act emphasizes the need to insure public involvement in the development and implementation of the standards, plans, and programs which it mandates. Section 101(e) of this act describes the basic framework for public participation which is further delineated in federal regulations (40 CFR 105). The Federal Land Policy and Management Act of 1976 (PL 94-579) and BLM Regulations for Planning (43 CFR 1601.3) also provide for public involvement throughout the planning/decision making and review process. Through this public involvement process, any decisions relating to water quality will be open to the public and subject to review, comment, and appeal.

4. Implementation Mechanisms

The BLM and WQB agree that the implementation of BMPs will be made in conjunction with **BLM land management decisions** for lands and resources under BLM jurisdiction (currently referred to a Management Framework Plans or Resource Management Plans). These decision documents incorporate an initial water quality management plan which will be periodically revised, updated, and refined during the ongoing, continuous planning process. These decision documents will be provided to the WQB for timely review in accordance with the BLM final regulations for planning consistency with state agency plans, programs and policies (43 CFR 1601.4).

5. Monitoring

Monitoring of Best Management Practices will be performed by BLM to meet two objectives. The first objective is to determine the degree to which BMPs are being implemented in field operations when compared to stated water quality protection plans in the management decision document (MFP or RMP)(43 CFR 1601.5-9). The second monitoring objective is related to the effectiveness of

prescribed BMPs. As funds are available, BMPs will be evaluated to determine if they are having the desired and expected effect on water quality and to guide decisions on possible modifications. This evaluation will be coordinated with WQB water quality monitoring programs to the extent possible.

6. Program Review, Evaluation and Updating

The BLM and WQB agree to meet annually (as discussed under III, B, I, b above) to evaluate the program and the progress being made. At this annual meeting, the following items (not all-inclusive) will be addressed:

a. All available monitoring information will be reviewed to determine if State water quality management plan goals are being met and to prescribe procedures for more effective program implementation. The BLM will present and discuss land use planning and activity planning commitments which may incorporate BMPs. In addition, the BLM monitoring program will be reported biannually to EPA (305-b) through the WQB, or as mutually agreed.

b. Any proposed revisions or additions of BMPs will be provided prior to the annual meeting by the WQB or other designated state agency for BLM review and comment.

c. Constraints of manpower and funds on immediate and effective program implementation will be discussed.

C. Coordination

The BLM and WQB mutually agree to assign a contact person within each agency to coordinate the execution of this memorandum of understanding.

D. Designation

On the basis of this memorandum of understanding, WQB will recommend that the Governor formally designate BLM as the implementing agency for non-point source pollution control on federal lands under its jurisdiction.

SECTION IV. LIMITATIONS, AMENDMENTS AND TERMINATIONS

A. Limitations

Nothing in this agreement will be construed as limiting or affecting in any way the authority or legal responsibility of the BLM or the state, or as binding either the BLM or state to perform beyond the respective authority of each, or to require either agency to assume or expend any sum in excess of appropriations available.

Nothing in this agreement will be construed as requiring the BLM to complete land use planning documents (Resource Management Plans) ahead of the current schedule and as funded. Any Best Mangement Practices which may be implemented without completion of such plans may be incorporated into individual resource activity plans and environmental assessment documents.

Each and every provision of this supplement is subject to the laws of the State of Montana and the laws of the United States, and the regulations of the Secretary of the Interior.

B. Effective Date, Amendments and Termination

This Memorandum of Understanding Supplement shall become effective as soon as signed by the parties hereto and shall continue in force unless formally terminated by either party after thirty (30) days' notice in writing to the other of his intention to do so.

Additional amendments or appendices to this agreement may be proposed by either party and shall become effective upon approval by both parties.

Approved:

BUREAU OF LAND MANAGEMENT, USDI

Mulvel A. Fields — Mar. 31 1980

Signature — Date

Approved:

MONTANA DEPARTMENT OF HEALTH AND ENVIRONMENTAL SCIENCES, WATER QUALITY BUREAU

A Knight — April 22-1980

Signature — Date

APPENDIX B

United States
Environmental Protection
Agency

Region 8, Montana Office
Federal Building
301 S. Park, Drawer 10096
Helena, Montana 59601

EPA

DEC 1 1980

REF: 8MO

Mr. Michael J. Penfold
State Director
Bureau of Land Management
222 N. 32nd Street
P.O. Box 30157
Billings, Montana 59101

P & EC
ACTION
FILING

During the past year the State of Montana and the Environmental Protection Agency have jointly certified and approved several water quality management plans. The plans were developed in accordance with provisions of Section 208 of the Clean Water Act which provided a means for evaluating and proposing solutions to nonpoint source water quality problems in Montana. Many State and Federal agencies participated in the development of these plans as required by the Act and have formalized their commitment to implement the plan recommendations through written agreements.

As examples, the U. S. Forest Service and Bureau of Land Management have expended considerable efforts in negotiating and carrying out agreements to coordinate their water quality planning and water pollution control activities with those of State and local planning and management agencies. A Statewide approach to addressing nonpoint source problems has been possible because of these efforts.

One of the purposes of this letter is to encourage the continued involvement of the already active Federal agencies in the water quality management program and to inform other Federal agencies having jurisdiction in Montana to be aware of the legal requirements for involvement.

This requirement that all Federal agencies must be involved and cooperate in the implementation of water quality management plans is manifested in Executive Order 12088 which states:

"1-201. Each Executive agency shall cooperate with the Environmental Protection Agency and State, interstate and local agencies in the prevention, control and abatement of enviromental pollution."

"1-202. Each Executive agency shall consult with the Environmental Protection Agency and State, interstate and local agencies concerning the best techniques and methods available for the prevention, control and abatement of environmental pollution."

For your future reference, a copy of Executive Order 12088 is attached.

The Montana EPA Office and our Denver Regional Office will continue to assist Federal agencies in complying with provisions of the approved water quality management plans. At the present time, these plans cover all areas of the State, except Indian reservations. Water quality problems on reservation lands are presently being studied under the 208 program and, plan approvals are contemplated for fiscal year 1982. The status of the approved plans are as follows:

208 Plan	EPA Approval	Draft Update
Statewide (includes dedesignated Mid-Yellowstone Areawide Plan)	March 26, 1980	Projected for December 31, 1980
Flathead Areawide	November 5, 1979	Projected for December 31, 1980
Blue Ribbons Areawide	December 26, 1979	September 15, 1980
Yellowstone - Tongue Areawide	December 26, 1979	September 25, 1980

We are including a map of the State showing the areas covered by each plan and the address of each planning agency.

Because of the dynamic nature of the program, we recommend that at least on an annual basis an informal meeting between the State, EPA and appropriate Federal agencies be held to discuss progress in implementing water quality management plans, to review recent developments in planning activites and to identify priorities for the upcoming year. I suggest that you contact Max Dodson or Bob Fox at FTS 585-5486 to indicate your interest in such a meeting to be held early in 1981.

Sincerely,

Ivan W. Dodson

Ivan W. Dodson, Director
Montana Office

Enclosures

cc: John Bartlett, Deputy Director, DHES

APPENDIX C
(PART I)

Agriculture Best Management Practices

(From SCS Engineering Standards and Specifications)*

Practice (Alphabetical Listing)	Code
Access Road	560 A
Chiseling and Subsoiling	324 A
Conservation Cropping System	328 A
Contour Farming	330 A
Cover and Green Manure Crop	340 A
Critical Area Planting	342 A
Crop Residue Management	344 A
Crop Residue Management	344 A
Stubble Mulching	344 B
Debris Basin	350 A
Deferred Grazing	352
Dike	356 A
Diversion	362 A
Emergecy Tillage	352
Fencing	382 AC
Field Border	386 E
Field Windbreaks	392 A
Grade Stabilization Structure	410 A
Grassed Waterway or Outlet	412 A
Grasses and Legumes in Rotation	411 A
Grazing Land Mechanical Treatment	548 C
Heavy Use Area Protection	561 E
Irrigation System, Tailwater Recovery	447 A
Irrigation Water Management	449 A
Lined Waterway or Outlet	468
Livestock Exclusion	472 C
Minimum Tillage	478
Mulching	484 A
Pasture and Hayland Management	510 B
Pasture and Hayland Planting	512 B
Planned Grazing System	556 C
Proper Grazing Use	528 C
Range Renovation	548
Range Seeding	550 C
Recreation Area Improvement	562 F
Recreation Trail and Walkway	568 F
Rock Barrier	555 A
Spoilbank Spreading	572 B
Spring Development	574 C
Stream Channel Stabilization	584 A
Streambank Protection	580 A
Blanket Rock Riprap	580A A
Vegetative	580B A
Stripcropping	585 A
Contour	585A A
Field	595B A
Wind	583C A
Structure for Water Control	587 A
Stubble Mulching	344 B
Tall Wheatgrass Barriers	Interim
Waterspreading	640 A

*Refer to SCS Standards and Specifications for detailed practices.

(Copies on file in Montana State Office and District Office libraries.)

APPENDIX C
(PART II)

RECOMMENDED FOREST BEST MANAGEMENT PRACTICE GUIDELINES

DEFINITIONS:

As used in these guidelines unless otherwise required by context:

1. "Forest practice" means (a) the harvesting of forest tree species; (b) road construction associated with harvesting of forest tree species; (c) reforestations; or (d) the disposal of slashings resulting from harvesting, management, or improvement of forest stands.

2. "Forest land" means state and private land growing forest tree species which are, or could be at maturity, capable of furnishing raw material used in the manufacture of lumber or other forest products. The term includes state and private land from which forest tree species have been removed but have not yet been restocked, but it does not include land affirmatively converted to uses other than the growing of trees.

3. "Operator" means a person who conducts or is required to conduct a forest practice.

4. "Harvesting" means a commercial activity related to the cutting or removal of forest tree species to be used as a forest project. A commercial activity does not include the cutting or removal of forest tree species by a person for his own personal use.

5. "BMP" means management guidelines adopted by the Conservation Districts for water quality protection at the recommendation of the Statewide 208 Water Quality Management Plan.

6. "Landowner" means a person, partnership, corporation, or association of whatever nature, other than the landowner, that holds an ownership interest in forest tree species on forest land.

7. "Timber owner" means a person, partnership, corporation, or association of whatever nature, other than the landowner, that holds an ownership interest in forest land management.

8. "310 permit" means that permit required under Natural Streambed and Land Preservation Act of 1975 from the Conservation District for projects that will physically modify or alter a perennial stream.

9. "6(g) authorization" means that approval required by the Department of Health and Environmental Sciences for any construction activity that may cause a water quality violation of the turbidity standard.

10. "Class I streams" means waters which are valuable for domestic use, important for angling or other recreation, and/or used by significant numbers of fish for spawning, rearing or migration routes. Stream flows may be either perennial or intermittent.

11. "Class II streams" means any headwater streams or minor drainages that generally have limited or no direct value for angling or other recreation. They are used by only a few, if any, fish for spawning or rearing. Their principal value lies in their influences on water quality or quantity downstream in Class I waters. Stream flow may be either perennial or intermittent.

12. "Relief culvert" means a structure to relieve surface runoff from roadside ditches to prevent excessive buildup in volume and velocity.

13. "Buffer strip" means a protective area adjacent to an area requiring special attention or protection. Neither an optimum nor a minimum width can be set arbitrarily for buffer strips for shading streams, maintaining stream stability, and reducing sediment delivery. It must be realized that the necessary width will vary with steepness of terrain, other topographic features, the nature of the undercover, the kind of soil and the amount of timber that is to be removed.

14. "Water bar" means a diversion ditch and/or hump in a skid trail, fire trail, or road for the purpose of carrying surface water runoff into the vegetation and duff so that it does not gain the volume and velocity which cause soil movement and erosion.

15. "Critical soils" means unstable soils which are prone to damage either naturally or by land management activity. Areas of such critical soils are identified by universally accepted soils definitions used by the Soil Conservation Service and other agencies and organizations in the soils science field.

RECOMMENDED BEST MANAGEMENT PRACTICES (BMP) FOR THE HARVESTING OF FOREST TREE SPECIES

The purpose of the following BMPs is to establish minimum standards for forest practices that will maintain the productivity of the forest land, and minimize soil and debris entering streams.

Harvesting practices should be designed to assure the continuous growing and harvesting of forest tree species by suitable economic means which will protect the soil and water resources. Select for each harvesting operation the logging method and the type of equipment adapted to the given slope, landscape and soil properties in order to minimize soil deterioration.

DRAINAGE SYSTEM

1. **BMP**: For each landing, skid trail, or fire trail, a drainage system should be provided and maintained that will control the dispersal of surface runoff water from such exposed soils in order to minimize erosion.

2. **BMP**: Landing, skid trails, the fire trails should be located on stable areas to minimize the risk of material entering streams or any other body of water.

STREAM PROTECTION

1. **BMP**: During harvesting practices, stream beds and stream-side vegetation should be maintained in as near natural state as possible in order to maintain water quality and aquatic habitat. Recommendations from appropriate Conservation Districts, Forest Personnel, or Fish, Wildlife and Parks officials should be solicited by the logger or landowner prior to harvesting.

2. **BMP**: No skidding or yarding in or through any flowing streams.

3. **BMP**: Maintenance of the shading, soil stabilizing and water filtering effects of vegetation along Class I streams by one or more of the following methods is recommended:

   a) Leave hardwood trees, shrubs, grass and rock wherever they afford shade over a Class I stream or maintain the integrity of the soil near such a stream.

   b) Where insufficient nonmerchantable tree species exist to provide adequate shade over the stream, a fringe of undisturbed merchantable trees is recommended. Staggered cuttings or other means which will not result in a significant increase in stream temperatures or remove a substantial amount of cover is acceptable in some situations.

   c) Carefully log the mature timber from the buffer strip in such a way that shading and filtering effects are not destroyed.

   d) Where it is difficult to leave buffer strips of timber to shade a stream, prompt reestablishment of stream-side cover is recommended after cutting is completed.

4. **BMP**: When streams must be skidded across, adequate temporary structures are recommended to carry stream flow. All temporary crossings should be removed immediately after use, and water bars placed at road ends where applicable.

5. **BMP**: When yarding across such streams is necessary, it should be accomplished by swinging the yarded material free of the streambed and banks to minimize damage to the channel and streambank vegetation.

6. **BMP**: Stabilization strips of undergrowth vegetation should be left along all Class II streams in widths sufficient to prevent washing of sediment into Class I streams below.

7. **BMP**: No machine activity in beds of streams or any body of water should occur except in cases where activities are in accordance with 310 and 6(g) requirements.

TREATMENT OF WASTE MATERIALS

1. **BMP**: All waste material associated with harvesting should be left or placed in such a manner as to prevent its entry by erosion, high water, or other means into streams or other bodies of water.

2. **BMP**: Waste resulting from harvesting, such as crankcase oil, filters, grease and oil containers, machine parts, old wire rope, used tractor tracks and other similar materials, should be disposed of immediately following termination of the harvesting practice. At no time should such materials be placed in waterways or within the high water level of waterways. Maintenance or repair activities should be conducted away from waterways or drainages that would allow wastes to reach a stream.

3. **BMP**: Wherever possible, trees should be felled, bucked, and limbed so the tree or any part thereof will fall away from any stream or other body of water. Remove all material that enters such a stream as an ongoing process during harvesting operations. Place removed material above high water level.

RECOMMENDED BMPs FOR ROAD CONSTRUCTION ASSOCIATED WITH HARVESTING FOR FOREST TREE SPECIES

The following BMPs provide for road construction that will ensure protection and maintenance of forest productivity, water quality and fish and wildlife habitat during construction and maintenance. A well planned, located, constructed, and maintained road system can reduce adverse environmental impacts on the soil, air, and water resource.

1. **BMP**: All waste material associated with road construction should be placed in such a manner as to prevent their entry by erosion, high water, or other means into streams or other bodies of water.

2. **BMP**: During a road construction practice, stream beds and roadside vegetation should be maintained in as near natural state as possible in order to maintain water quality and aquatic habitat. Required 404 and 310 permits (Conservation District) and 6(g) authorizations (WOB) will be secured where road construction activities are expected to modify or alter the streambeds and streambanks.

ROAD LOCATION AND PLANNING

Roads should be located on stable areas and constructed to minimize the risk of material entering streams.

1. **BMP**: Road specifications should provide a drainage system which will control the dispersal of surface run-off water from roads and exposed soils in order to minimize turbid waters from draining into streams or other bodies of water.

2. **BMP**: Where practical alternatives exist, avoid steep, narrow canyons, slide areas, slumps, marshes, wet meadows, or natural drainage channels. Where alternatives do not exist, and where there is a risk of material entering streams, obtain prior approval from the Conservation Districts and WQB.

3. **BMP**: Where culverts are installed in large fills, some form of headwall (usually riprap) to prevent erosion of the fill or adequate length of culvert to prevent blockage from slippage or slumping is recommended.

4. **BMP**: Roads should be designed to drain naturally by outsloping and through grade changes wherever possible.

5. **BMP**: Where determined, culverts should have a minimum slope of one percent and be provided with a sediment-catching basin at the entrance. Downspouts, riprap, or other slope protection measures should be used to avoid erosion of fill areas and to provide for adequate fish passage and minimum impact on water quality.

ROAD CONSTRUCTION

1. **BMP**: Debris overburden, and other waste material associated with road construction should be placed in such a manner as to prevent entry into streams and other bodies of water.

2. **BMP**: Changes should not be made in natural fish bearing stream courses either by crowding (filling along one bank) or by relocation of the channel, except as allowed by conditions in a 310 permit from the Conservation Districts.

3. **BMP**: Drainage ways should be cleared of all woody debris generated during road construction or maintenance.

4. **BMP**: Stream crossings either temporary or permanent should be constructed to result in minimum disturbance to banks and existing channels and in accordance with 310 permits and 6(g) authorizations. Temporary crossings should be removed promptly after use, and water bars placed at road ends where appropriate.

5. **BMP**: Where sidecast material is recognized as potentially unstable or erodable, it should be stabilized by use of seeding, compacting, riprapping, benching, or other suitable means.

6. **BMP**: Machine activity in beds of streams or bodies of water will be subject to conditions of 310 permits and 6(g) authorizations.

7. **BMP**: Drainage structures should be installed as soon as feasible during the pioneering stage of road construction. Incompleted road grades subject to washing before grading should be adequately cross-drained.

ROAD MAINTENANCE

1. **BMP**: Road maintenance on roads that will remain in use should be sufficient to maintain a stable running surface and to keep the drainage system operating.

2. **BMP**: When it is the intention of the landowner to discontinue or discourage active use of the road, the road should be left in such a state as to provide for adequate drainage and soil stability without continuous active maintenance to prevent soil erosion.

RECOMMENDED BEST MANAGEMENT PRACTICES FOR DISPOSAL OF SLASHINGS RESULTING FROM HARVESTING, MANAGEMENT OR IMPROVEMENT OF FOREST TREE SPECIES

1. **BMP**: Slash accumulations around landings should be disposed of or dispersed to prevent their entry into streams.

2. **BMP**: Whenever disposal of slashing is to be accomplished by burning, such burning should be accomplished under conditions that will assure adequate maintenance of air and water quality as recommended by the Conservation Districts or State Forestry Division.

APPENDIX D

United States Environmental Protection Agency | Region 10 1200 Sixth Avenue Seattle WA 98101

Water | November 1979

EPA

Livestock Grazing Management And Water Quality Protection

(State of the Art Reference Document)

Produced jointly by:
The United States Environmental Protection Agency
and
The USDI Bureau of Land Management

EPA 910/9-76-007
MARCH 1975

LOGGING ROADS AND PROTECTION OF WATER QUALITY

U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION X
WATER DIVISION
1200 SIXTH AVENUE
SEATTLE, WASHINGTON 98101

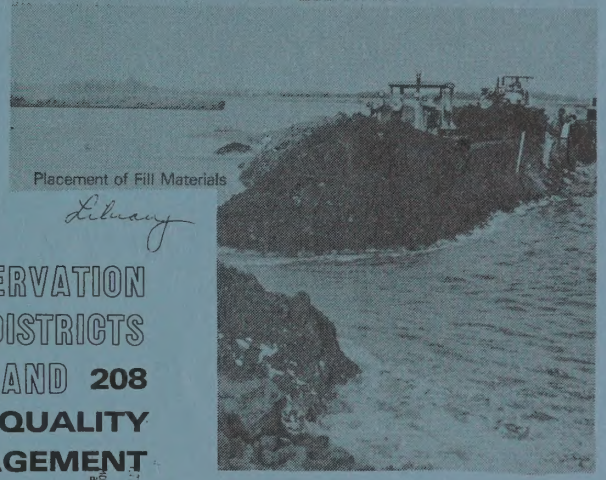
United States Environmental Protection Agency | Office of Water Regulations and Standards Washington, D.C. 20460 | September 1979 EPA-440/5-79-009

Water

EPA

Best Management Practices Guidance, Discharge of Dredged or Fill Materials

MSO LIBRARY



Placement of Fill Materials

Library

CONSERVATION DISTRICTS AND 208 WATER QUALITY MANAGEMENT

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- non-point source identification and assessment
- selection of best management practices
- management agencies
- regulatory programs

U.S. ENVIRONMENTAL PROTECTION AGENCY

NATIONAL ASSOCIATION OF CONSERVATION DISTRICTS

I. NATIONAL GUIDANCE, POLICY, REPORTS

Best Management Practices Guidance, Discharge of Dredged or Fill Materials September 1979. United States Environmental Protection Agency, Office of Water Planning and Standards, Washington, D.C.

Livestock Grazing Management and Water Quality Protection, November 1979, USDI, Bureau of Land Management and United States Environmental Protection Agency, Region 10, Seattle, Washington.

Logging Roads and Protection of Water Quality, March 1975, Environmental Protection Agency, Region X, Water Division, Seattle, Washington.

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Annotated Bibliography for Water Quality Management, 4th Edition, May 1977, Environmental Protection Agency, Water Planning Division, Washington, D.C.

Environmental Protection in Surface Mining of Coal, October 1974, Environmental Protection Technology Series, Environmental Protection Agency, National Environmental Research Center, Office of Research and Development, Cincinnati, Ohio.

Water Quality Management Directory, Third Edition, March 1979, Environmental Protection Agency, Office of Water and Waste Management, Washington, D.C.

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Effectiveness of Soil and Water Conservation Practices for Pollution Control, October 1979, Environmental Protection Agency, Environmental Research Laboratory, Athens, Georgia.

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208 Water Quality Management Report, Department of the Interior, Bureau of Land Management.

A Unified National Program for Flood Plain Management, September 1979, Water Resources Council, Washington, D.C.

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Montana Water Resource Report 52 - Effects of Clear Cutting on Water, Discharge and Nutrient Loss, Bitterroot National Forest, Montana, prepared by Tom Bateridge, Montana University Joint, Water resources Research Center.

Completion Report - Hydrologic Characteristics of Coal-Mine Spoils, Southeastern Montana MUJWRRC Report No. 94, Montana University Joint, Water Resources Research Center.

The Mitigation Symposium: A National Workshop on Mitigation Losses of Fish and Wildlife Habitats, General Technical Report RM-65, July 16-20, 1979, Colorado State University, Fort Collins, Colorado, Rocky Mountain Forest and Range Experiment Station, Forest Service, Department of Agriculture, Fort Collins, Colorado.

Managing Irrigated Agriculture to Improve Water Quality.

II. MONTANA STATEWIDE 208 PUBLICATIONS

Preliminary Draft Montana Statewide 208 Surface and Groundwater Quality Assessment and Management Alternatives, November 1978, Montana Department of Health and Environmental Sciences, Water Quality Bureau, Helena, Montana.

A Forest Service Assessment of Water Pollution Problems on the National Forests in Montana, prepared by Richard H. Wheeler, Hydrologist, USDA Forest Service, Northern Region, Missoula, Montana, for the Department of Health and Environmental Sciences, Water Quality Bureau, Helena, Montana.

Ground-Water Quality Assessment in the Montana Statewide 208 Planning Area, prepared by Westech (Western Technology and Engineering, Inc.) for the Department of Health and Environmental Sciences, Water Quality Bureau, Helena, Montana.

Silviculture NPS Assessment on Non-USFS Lands in the Montana Statewide 208 Area, prepared by Westech (Western Technology and Engineering, Inc.) for the Department of Health and Environmental Sciences, Water Quality Bureau, Helena, Montana.

Mining NPS Assessment in the Montana Statewide 208 Area, prepared by Westech (Western Technology and Engineering, Inc.) for the Department of Health and Environmental Sciences Sciences, Water Quality Bureau, Helena, Montana.

Biological Water Quality Monitoring - Southwest Montana 1977-1978, by Loren L. Bahls, Gary L. Ingman and Abraham A. Horpestad, February 1979, Department of Health and Environmental Sciences, Water Quality Bureau, Helena, Montana.

An Agricultural Non-point Source Pollution Management Plan, prepared for Montana Department of Health and Environmental Sciences, Water Quality Bureau, Helena, Montana, by the Montana Association of Conservation Districts.

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Streamflow and Water Quality in the Lower Big Hole River, Summer 1977, prepared by Loren Bahls, Department of Health and Environmental Sciences, Water Quality Bureau.

Preliminary Report Urban and Industrial Stormwater Assessment for the Montana Statewide 208 Area, December 1977, prepared by Keith Brown and William Garvin, Department of Health and Environmental Sciences, Water Quality Bureau, Helena, Montana.

An Analysis of State Programs Relating to Land and Water Planning and Management in Montana 1978, prepared by John Andrews, Division of Planning, Department of Community Affairs for the Department of Health and Environmental Sciences, Water Quality Bureau, Helena, Montana.

An Assessment of Mining Impacts on Water Quality in the Northern Boulder Batholith, August 1978, prepared by Dick Pedersen, Department of Health and Environmental Sciences, Water Quality Bureau, Helena, Montana.

Socio-Demographic Projections for the Montana Statewide 208 Area, prepared by the Department of Community Affairs for the Water Quality Bureau, Department of Health and Environmental Sciences, Helena, Montana.

III. NORTH DAKOTA STATEWIDE 208 PUBLICATIONS

North Dakota Statewide 208 Water Quality Management Plan, Water Quality Report, March 1979, Division of Water Supply and Pollution Control, North Dakota State Department of Health.

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North Dakota Statewide 208 Water Quality Management Plan, Non-Point Source Plan, March 1979, Division of Water Supply and Pollution Control, North Dakota State Department of Health.

IV. SOUTH DAKOTA STATEWIDE 208 PUBLICATIONS

208 Areawide Water Quality Management Planning Report, Final Report, Sixth District of Council of Local Governments, South Dakota.

APPENDIX E

208 WATER QUALITY PROGRAM CONTACTS

BLM, Washington Office (211) — Water Resources Policy Staff

BLM, Montana State Office (931) — Branch of Biological Resources
(961) — Branch of Planning Coordination

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Helena, Montana 59601

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555 Fuller Avenue
Helena, Montana 59601

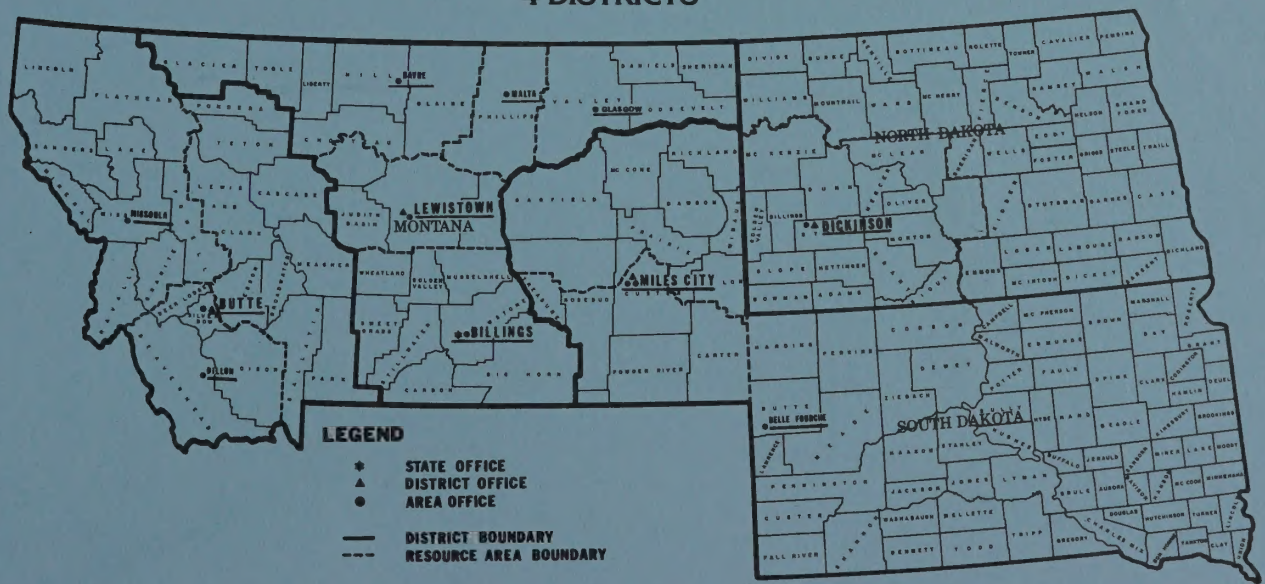
North Dakota State Department of Health,
Division of Water Supply & Pollution Control
Missouri Office Building, 1200 Missouri Avenue
Bismarck, North Dakota 58505

South Dakota, 6th District Council of Local Governments
P.O. Box 1586
Rapid City, South Dakota 57701

WATER QUALITY MANAGEMENT ON THE PUBLIC LANDS

ACREAGE STATISTICS
MONTANA BLM ORGANIZATION

District	Surface Ownership BLM	Surface Ownership Other*	Subsurface Ownership BLM	Subsurface Ownership Other	Total All Ownership
Miles City	2,785,299	17,363,119	10,910,741	9,237,677	20,148,418
S. Dakota	68,000	48,335,200	800,000	47,811,200	48,611,200
Dickinson	276,000	44,266,720	4,968,000	39,366,720	44,334,720
Lewistown	3,884,701	33,167,855	8,177,983	28,879,603	37,057,586
Butte	1,334,000	33,456,400	2,285,345	32,505,054	34,790,400

*Includes lands administered by other federal agencies, state and private lands.

DISTRICT BOUNDARIES AND OFFICE LOCATIONS
4 DISTRICTS